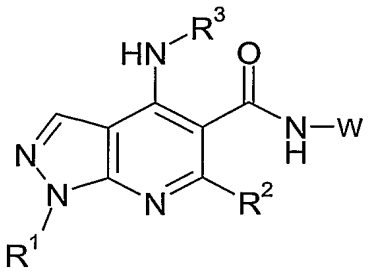
CLAIMS

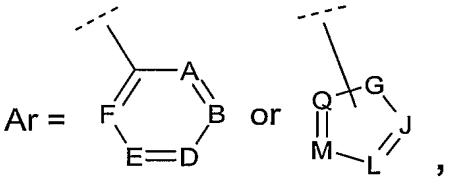
1. A compound of formula (I) or a salt thereof (in particular, a pharmaceutically acceptable salt thereof):



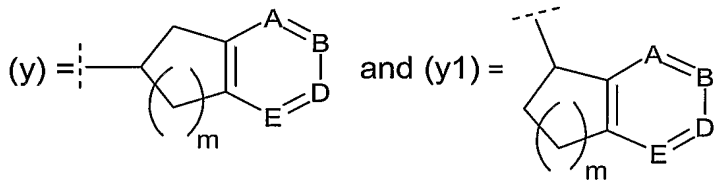
(I)

wherein:

W is Ar, $-CR^4R^5Ar$ or a group (y) or (y1) wherein:



(x) (z)

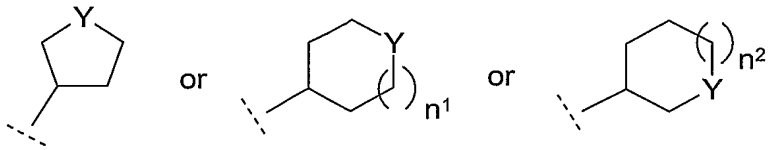


wherein m = 1 or 2

R^1 is C_{1-4}alkyl, C_{1-3}fluoroalkyl, or $-CH_2CH_2OH$;

R^2 is C_{2-6}alkyl, C_{3-6}cycloalkyl or $-(CH_2)_{n^4}C_{3-6}$cycloalkyl, wherein n^4 is 1 or 2;

R^3 is optionally substituted C_{3-8}cycloalkyl or optionally substituted mono-unsaturated-C_{5-7}cycloalkenyl or an optionally substituted heterocyclic group of sub-formula (aa), (bb) or (cc);

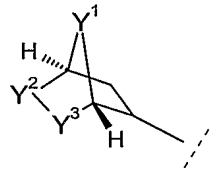


(aa) (bb) (cc)

in which n^1 and n^2 independently are 1 or 2; and in which Y is O, S, SO_2, or NR^{10}; where R^{10} is a hydrogen atom (H), C_{1-2}alkyl, C_{1-2}fluoroalkyl, $CH_2C(O)NH_2$, $C(O)NH_2$, C(O)NHMe, C(O)-C_{1-2}alkyl, C(O)-C_1fluoroalkyl or -C(O)-CH_2O-C_{1-2}alkyl;

and wherein in R^3 the C_{3-8}cycloalkyl or the heterocyclic group of sub-formula (aa), (bb) or (cc) is optionally substituted on a ring carbon with one or two substituents independently being oxo (=O); OH; C_{1-2}alkoxy; C_{1-2}fluoroalkoxy; NHR^{21} wherein R^{21} is a hydrogen atom (H) or C_{1-4} straight-chain alkyl; C_{1-2}alkyl; C_{1-2}fluoroalkyl; -CH_2OH; -CH_2CH_2OH; -CH_2NHR^{22} wherein R^{22} is H or C_{1-2}alkyl; -$C(O)OR^{23}$ wherein R^{23} is H or C_{1-2}alkyl; -$C(O)NHR^{24}$ wherein R^{24} is H or C_{1-2}alkyl; -$C(O)R^{25}$ wherein R^{25} is C_{1-2}alkyl; fluoro; hydroxyimino (=N-OH); or (C_{1-4}alkoxy)imino (=N-OR^{26} where R^{26} is C_{1-4}alkyl); and wherein any OH, alkoxy, fluoroalkoxy or NHR^{21} substituent is not substituted at the R^3 ring carbon attached (bonded) to the -NH- group of formula (I) and is not substituted at either R^3 ring carbon bonded to the Y group of the heterocyclic group (aa), (bb) or (cc);

and wherein, when R^3 is optionally substituted mono-unsaturated-C_{5-7}cycloalkenyl, then the cycloalkenyl is optionally substituted with one substituent being fluoro or C_{1-2}alkyl or two substituents independently being fluoro or methyl , and the R^3 ring carbon bonded to the -NH- group of formula (I) does not partake in the cycloalkenyl double bond;



(ee)

or R^3 is a bicyclic group of sub-formula (ee): wherein Y^1, Y^2 and Y^3 independently are CH_2 or oxygen (O) provided that no more than one of Y^1, Y^2 and Y^3 is oxygen (O);

and wherein:

R^4 and R^5 are independently a hydrogen atom (H), methyl, ethyl, n-propyl, isopropyl, C_{1-2}fluoroalkyl, cyclopropyl, -CH_2OR^{4a}, -CH(Me)OR^{4a}, or -$CH_2CH_2OR^{4a}$, wherein R^{4a} is a hydrogen atom (H), methyl (Me), or C_1fluoroalkyl such as CF_3 or CHF_2.

and wherein, in sub-formula (x) (y) and (y1):

A is C-R^{6A}, nitrogen (N) or nitrogen-oxide (N^+-O^-),
B is C-R^{6B}, nitrogen (N) or nitrogen-oxide (N^+-O^-),
D is C-R^{6D}, nitrogen (N) or nitrogen-oxide (N^+-O^-),
E is C-R^{6E}, nitrogen (N) or nitrogen-oxide (N^+-O^-),
F is C-R^{6F}, nitrogen (N) or nitrogen-oxide (N^+-O^-),

wherein, R^{6A}, R^{6B}, R^{6D}, R^{6E} and R^{6F} independently are: a hydrogen atom (H), a halogen atom; C_{1-6}alkyl; C_{1-4}fluoroalkyl; C_{3-6}cycloalkyl; C_{1-4}alkoxy; C_{1-2}fluoroalkoxy; C_{3-6}cycloalkyloxy; -C(O)R^{16a}; -C(O)OR^{30}; -S(O)$_2$-R^{16a}; R^{16a}-S(O)$_2$-NR^{15a}-; R^7R^8N-S(O)$_2$-; C_{1-2}alkyl-C(O)-R^{15a}N-S(O)$_2$-; C_{1-4}alkyl-S(O)-, Ph-S(O)-, R^7R^8N-CO-; -NR^{15}-C(O)R^{16a}; R^7R^8N; nitro (-NO_2); OH (including any tautomer thereof); C_{1-4}alkoxymethyl; C_{1-4}alkoxyethyl; C_{1-2}alkyl-S(O)$_2$-CH_2-; R^7R^8N-S(O)$_2$-CH_2-; C_{1-2}alkyl-S(O)$_2$-NR^{15a}-CH_2-; -CH_2-OH; -CH_2CH_2-OH; -CH_2-NR^7R^8; -CH_2-CH_2-NR^7R^8; -CH_2-C(O)OR^{30}; -CH_2-C(O)-NR^7R^8; -CH_2-NR^{15a}-C(O)-C_{1-3}alkyl; -$(CH_2)_n{}^{14}$-Het^1 where n^{14} is 0 or 1; cyano (-CN); Ar^{5b}; or phenyl, pyridinyl or pyrimidinyl wherein the phenyl, pyridinyl or pyrimidinyl independently are optionally substituted by one or two of fluoro, chloro, C_{1-2}alkyl, C_1fluoroalkyl, C_{1-2}alkoxy or C_1fluoroalkoxy;

and/or two adjacent groups selected from R^{6A}, R^{6B}, R^{6D}, R^{6E} and R^{6F} are taken together and are: –CH=CH–CH=CH_2–, –$(CH_2)_n{}^{14a}$– where n^{14a} is 3, 4 or 5, –O–(CMe_2)–O–, –O–$(CH_2)_n{}^{14b}$–O– where n^{14b} is 1 or 2; -CH=CH-NR^{15b}-; -N=CH-NR^{15b}-; -CH=N-NR^{15b}-; -N=N-NR^{15b}-; -CH=CH-O-; -N=CH-O-; -CH=CH-S-; or -N=CH-S-; wherein R^{15b} is H or C_{1-2}alkyl;

provided that:

two or more of A, B, D, E and F are independently C-H (carbon-hydrogen), C-F (carbon-fluorine), nitrogen (N), or nitrogen-oxide (N^+-O^-);

and no more than two of A, B, D, E and F are independently nitrogen or nitrogen-oxide (N^+-O^-),

and no more than one of A, B, D, E and F is nitrogen-oxide (N^+-O^-);

and wherein, in sub-formula (z):

G is O or S or NR^9 wherein R^9 is a hydrogen atom (H), C_{1-4}alkyl, or C_{1-2}fluoroalkyl;
J is C-R^{6J}, C-[connection point to formula (I)], or nitrogen (N),

L is C-R^{6L}, C-[connection point to formula (I)], or nitrogen (N),
M is C-R^{6M}, C-[connection point to formula (I)], or nitrogen (N),
Q is C-R^{6Q}, C-[connection point to formula (I)], or nitrogen (N),

wherein, R^{6J}, R^{6L}, R^{6M} and R^{6Q} independently are: a hydrogen atom (H), a halogen atom; C_{1-4}alkyl; C_{1-3}fluoroalkyl; C_{3-6}cycloalkyl; C_{1-4}alkoxy; C_{1-2}fluoroalkoxy; C_{3-6}cycloalkyloxy; OH (including any tautomer thereof); or phenyl optionally substituted by one or two substituents independently being fluoro, chloro, C_{1-2}alkyl, C_1fluoroalkyl, C_{1-2}alkoxy or C_1fluoroalkoxy;

provided that:
two or more of J, L, M and Q are independently C-H, C-F, C-C_{1-2}alkyl, C-[connection point to formula (I)], or nitrogen (N);
and no more than three of J, L, M and Q are nitrogen (N);

and wherein:

R^7 and R^8 are independently a hydrogen atom (H); C_{1-4}alkyl; C_{3-6}cycloalkyl; or phenyl optionally substituted by one or two substituents independently being: fluoro, chloro, C_{1-2}alkyl, C_1fluoroalkyl, C_{1-2}alkoxy or C_1fluoroalkoxy;

or R^7 and R^8 together are -$(CH_2)_n{}^6$- or -C(O)-$(CH_2)_n{}^7$- or -C(O)-$(CH_2)_n{}^{10}$-C(O)- or -$(CH_2)_n{}^8$-X^7-$(CH_2)_n{}^9$- or -C(O)-X^7-$(CH_2)_n{}^{10}$- in which: n^6 is 3, 4, 5 or 6, n^7 is 2, 3, 4, or 5, n^8 and n^9 and n^{10} independently are 2 or 3, and X^7 is O or NR^{14};

R^{7a} is a hydrogen atom (H) or C_{1-4}alkyl;

R^{8a} is a hydrogen atom (H) or methyl;

R^{14}, R^{17} and R^{17a} independently are: a hydrogen atom (H); C_{1-4}alkyl; C_{1-2}fluoroalkyl (e.g. CF_3); cyclopropyl; -C(O)-C_{1-4}alkyl; -C(O)$NR^{7a}R^{8a}$; or -$S(O)_2$-C_{1-4}alkyl;

R^{15a}, independent of other R^{15a}, is a hydrogen atom (H) or C_{1-4}alkyl;

R^{16a} is:
C_{1-6}alkyl;
C_{3-6}cycloalkyl optionally substituted by one oxo (=O), OH or C_{1-2}alkyl substituent;
C_{3-6}cycloalkyl-CH_2-;
pyridinyl optionally substituted on a ring carbon atom by one of: a halogen atom, C_{1-2}alkyl, C_1fluoroalkyl, C_{1-2}alkoxy or C_1fluoroalkoxy;

Ar^{5c};
phenyl optionally substituted by one or two substituents independently being: a halogen atom, C_{1-2}alkyl, C_1fluoroalkyl, C_{1-2}alkoxy or C_1fluoroalkoxy;
benzyl optionally substituted on its ring by one or two substituents independently being: a halogen atom, C_{1-2}alkyl, C_1fluoroalkyl, C_{1-2}alkoxy or C_1fluoroalkoxy; or
a 4-, 5-, 6- or 7-membered saturated heterocyclic ring connected at a ring-carbon and containing one or two ring-hetero-atoms independently selected from O, S, and N; wherein any ring-nitrogens which are present are present as NR^{27} where R^{27} is H, C_{1-2}alkyl or -C(O)Me; and wherein the ring is optionally substituted at carbon by one C_{1-2}alkyl or oxo (=O) substituent, provided that any oxo (=O) substituent is substituted at a ring-carbon atom bonded to a ring-nitrogen;

R^{30}, independent of other R^{30}, is a hydrogen atom (H), C_{1-4}alkyl or C_{3-6}cycloalkyl;

Ar^{5b} and Ar^{5c} independently is/are a 5-membered aromatic heterocyclic ring containing one O, S or NR^{15a} in the 5-membered ring, wherein the 5-membered ring can optionally additionally contain one or two N atoms, and wherein the heterocyclic ring is optionally substituted on a ring carbon atom by one of: a halogen atom, C_{1-2}alkyl, C_1fluoroalkyl, $-CH_2OH$, $-CH_2-OC_{1-2}$alkyl, OH (including the keto tautomer thereof) or $-CH_2-NR^{28}R^{29}$ wherein R^{28} and R^{29} independently are H or methyl; and

Het^1, is a 4-, 5-, 6- or 7-membered saturated heterocyclic ring connected at a ring-carbon and containing one or two ring-hetero-atoms independently selected from O, S, and N; wherein any ring-nitrogens which are present are present as NR^{31} where R^{31} is H, C_{1-2}alkyl or -C(O)Me; and wherein the ring is optionally substituted at carbon by one C_{1-2}alkyl or oxo (=O) substituent, provided that any oxo (=O) substituent is substituted at a ring-carbon atom bonded to a ring-nitrogen.

2. A compound or salt as claimed in claim 1, wherein R^1 is C_{2-3}alkyl, C_2fluoroalkyl or $-CH_2CH_2OH$.

3. A compound or salt as claimed in claim 2, wherein R^1 is ethyl, n-propyl or $-CH_2CH_2OH$.

4. A compound or salt as claimed in claim 3, wherein R^1 is ethyl.

5. A compound or salt as claimed in claim 1, 2, 3 or 4, wherein R^2 is C_{2-4}alkyl, C_{3-5}cycloalkyl or $-CH_2$cyclopropyl.

6. A compound or salt as claimed in claim 5, wherein R^2 is ethyl, propyl, cyclopropyl, cyclobutyl, cyclopentyl or cyclopropylmethyl.

7. A compound or salt as claimed in any preceding claim, wherein in R^3 there is one substituent or no substituent.

8. A compound or salt as claimed in any preceding claim, wherein R^3 is the optionally substituted C_{3-8}cycloalkyl or the optionally substituted heterocyclic group of sub-formula (aa), (bb) or (cc).

9. A compound or salt as claimed in any preceding claim, wherein, when R^3 is optionally substituted C_{3-8}cycloalkyl, it is optionally substituted cyclohexyl.

10. A compound or salt as claimed in any preceding claim, wherein, when R^3 is optionally substituted C_{3-8}cycloalkyl, then R^3 is C_{6-7}cycloalkyl optionally substituted with one or two substituents independently being oxo (=O); OH; NHR^{21} wherein R^{21} is a hydrogen atom (H); methyl; $-CH_2F$; $-CHF_2$; $-C(O)OR^{23}$ wherein R^{23} is H; $-C(O)NHR^{24}$ wherein R^{24} is H; fluoro; hydroxyimino (=N-OH); or methoxyimino (=N-OR^{26} where R^{26} is methyl).

11. A compound or salt as claimed in any claim 10, wherein, when R^3 is optionally substituted C_{3-8}cycloalkyl, then R^3 is C_{6-7}cycloalkyl optionally substituted with one or two substituents independently being OH; $-C(O)NHR^{24}$ wherein R^{24} is H; oxo (=O) or hydroxyimino (=N-OH).

12. A compound or salt as claimed in any preceding claim, wherein, for R^3, the one or two optional R^3 substituents if present is or are substituent(s):
(a) at the 3-position of a R^3 cyclobutyl ring, or
(b) at the 3- and/or 4- position(s) of a R^3 cyclopentyl or cyclopentenyl ring, or
(c) at the 3-, 4- and/or 5- position(s) of a R^3 cyclohexyl or cyclohexenyl ring, or
(d) at the 3-, 4-, 5- and/or 6- position(s) of a R^3 cycloheptyl or cycloheptenyl ring, or
(e) at the 3-, 4-, 5-, 6- and/or 7- position(s) of a R^3 cyclooctyl ring,
and/or
(f) at the 1-, 2- and/or highest-numbered- position(s) of a R^3 cycloalkyl or cycloalkenyl ring, for alkyl or fluoroalkyl substituent(s), and/or
(g) at the 2- and/or highest-numbered- position(s) of a R^3 cycloalkyl or cycloalkenyl ring, for NHR^{21} substituent(s).

13. A compound or salt as claimed in any preceding claim, wherein, when R^3 is the heterocyclic group of sub-formula (aa), (bb) or (cc), then Y is O or NR^{10}.

14. A compound or salt as claimed in any preceding claim, wherein R^{10} is H, $C(O)NH_2$ or C(O)methyl.

15. A compound or salt as claimed in claim 14, wherein R^{10} is $C(O)NH_2$.

16. A compound or salt as claimed in any preceding claim, wherein, when R^3 is the heterocyclic group of sub-formula (aa), (bb) or (cc), then R^3 is the heterocyclic group of sub-formula (bb) and n^1 is 1.

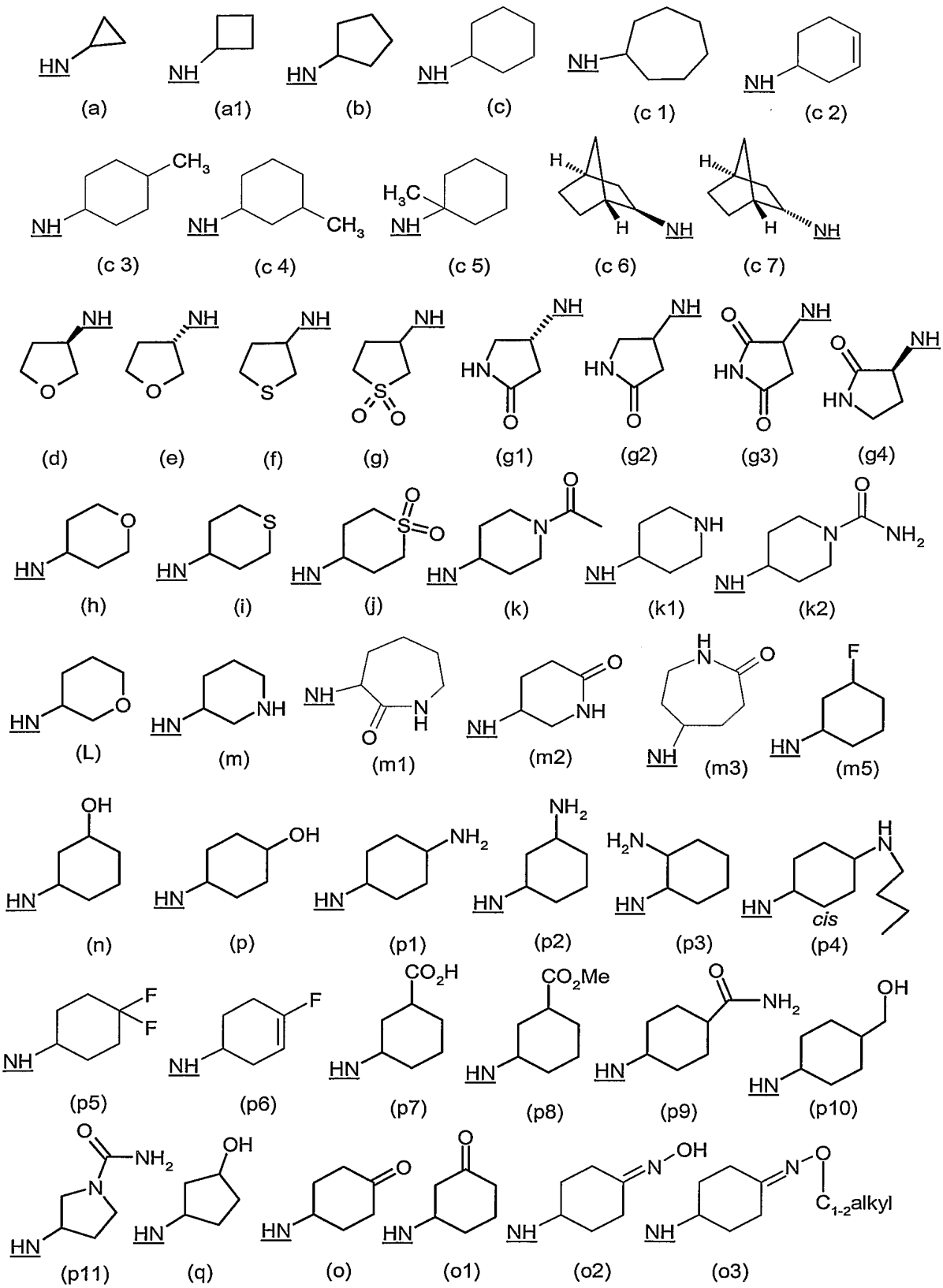
17. A compound or salt as claimed in any preceding claim, wherein, in R^3, the heterocyclic group of sub-formula (aa), (bb) or (cc) is unsubstituted on a ring carbon.

18. A compound or salt as claimed in any preceding claim, wherein:

when R^3 is optionally substituted mono-unsaturated-C_{5-7}cycloalkenyl, it is mono-unsaturated-cyclohexenyl optionally substituted with one or two substituents independently being fluoro or methyl.

and when R^3 is a bicyclic group of sub-formula (ee), then Y^1, Y^2 and Y^3 are all CH_2.

19. A compound or salt as claimed in any preceding claim, wherein NHR^3 is of sub-formula (a), (a1), (b), (c), (c 1), (c 2), (c 3), (c 4), (c 5), (c 6), (c 7), (d), (e), (f), (g), (g1), (g2), (g3), (g4), (h), (i), (j), (k), (k1), (k2), (L), (m), (m1), (m2), (m3), (m5), (n), (o), (o1), (o2), (o3), (p), (p1), (p2), (p3), (p4), (p5), (p6), (p7), (p8), (p9), (p10), (p11) or (q):


(a)
(a1)
(b)
(c)
(c 1)
(c 2)
(c 3)
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(c 5)
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(p11)
(q)
(o)
(o1)
(o2)
(o3)
C1-2alkyl

20. A compound or salt as claimed in claim 19, wherein NHR^3 is of sub-formula (c), (c1), (c 4), (c 5), (h), (i), (j), (k), (k2), (m1), (m2), (n), (o), (o2), (o3), (p2), (p5), (p6), (p9), (p11) or (q).

21. A compound or salt as claimed in claim 19, wherein NHR^3 is of sub-formula (c), (p11), (h), (k2), (n), (o), (o2) or (p9).

22. A compound or salt as claimed in claim 19, 20 or 21, wherein:

when NHR^3 is of sub-formula (n), then it is in the *cis* configuration, i.e. it is a *cis*-(3-hydroxycyclohexan-1-yl)amino group; and

when NHR^3 is of sub-formula (p9), then it is in the *cis* configuration, i.e. it is a *cis*-[4-(aminocarbonyl)cyclohexan-1-yl]amino group.

23. A compound or salt as claimed in claim 19, wherein NHR^3 is of sub-formula (h) or (k2), that is R^3 is tetrahydro-2H-pyran-4-yl or 1-(aminocarbonyl)-4-piperidinyl.

24. A compound or salt as claimed in any preceding claim, wherein R^4 is a hydrogen atom (H); methyl, ethyl, C_1fluoroalkyl, $-CH_2OH$, -CH(Me)OH, $-CH_2CH_2OH$, or $-CH_2OMe$.

25. A compound or salt as claimed in claim 24, wherein R^4 is a hydrogen atom (H), methyl, ethyl, $-CH_2OH$, or $-CH_2OMe$.

26. A compound or salt as claimed in any preceding claim, wherein R^5 is a hydrogen atom (H), methyl, ethyl, n-propyl, or iso-propyl.

27. A compound or salt as claimed in any preceding claim, wherein,
in sub-formula (x):

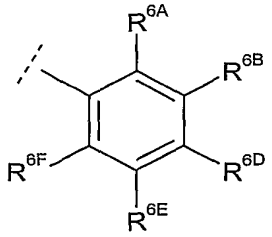
two or more of A, B, D, E and F are C-H (carbon-hydrogen); and one or more others of A, B, D, E and F are independently C-H (carbon-hydrogen), C-F (carbon-fluorine), C-Cl (carbon-chlorine), C-Me, C-OMe, or nitrogen (N);

no more than one of A, B, D, E and F is nitrogen; and

none of A, B, D, E and F are nitrogen-oxide (N^+-O^-).

28. A compound or salt as claimed in any preceding claim, wherein Ar has the sub-formula (x).

29. A compound or salt as claimed in claim 28, wherein Ar has the sub-formula (x), and the sub-formula (x) is sub-formula (x1), (x2), (x3), (x4), (x5), (x6), (x7), (x8), (x9), (x10), (x11), (x12), (x13), (x14), (x15) or (x16):



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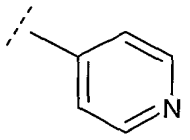

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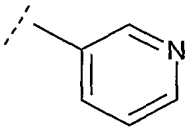

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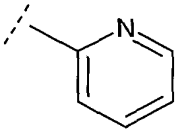

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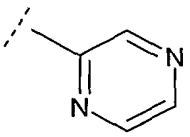

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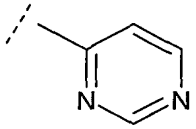

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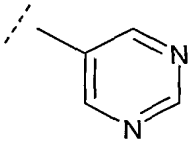

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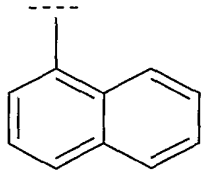

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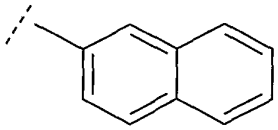
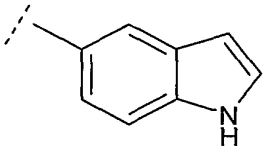
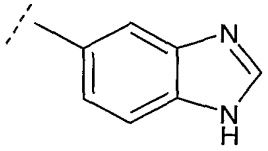


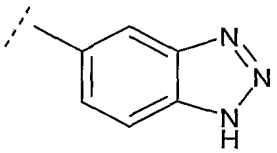
(x9)



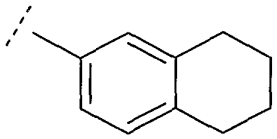
(x10)



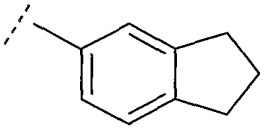
(x11)



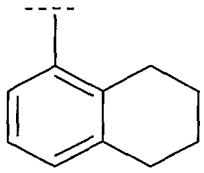
(x12)



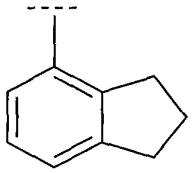
(x13)



(x14)



(x15)



(x16)

30. A compound or salt as claimed in claim 29, wherein Ar has the sub-formula (x), and the sub-formula (x) is sub-formula (x1).

31. A compound or salt as claimed in claim 30, wherein Ar is of sub-formula (x1) and is: monoalkyl-phenyl-, mono(fluoroalkyl)-phenyl-, monohalo-phenyl-, monoalkoxy-phenyl-, mono(fluoroalkoxy)-phenyl-, dialkyl-phenyl-, monoalkyl-monohalo-phenyl-, dihalo-phenyl- or dihalo-monoalkyl-phenyl-.

32. A compound or salt as claimed in claim 31, wherein Ar is: monoC_{1-4}alkyl-phenyl-; monoC_1fluoroalkyl-phenyl-; monoC_{1-3}alkoxy-phenyl-; mono(C_1fluoroalkoxy)-phenyl-; diC_{1-3}alkyl-phenyl-; monoC_{1-3}alkyl-monohalo-phenyl-; dihalo-phenyl-; or dihalo-monoC_{1-2}alkyl-phenyl-.

33. A compound or salt as claimed in any preceding claim, wherein,

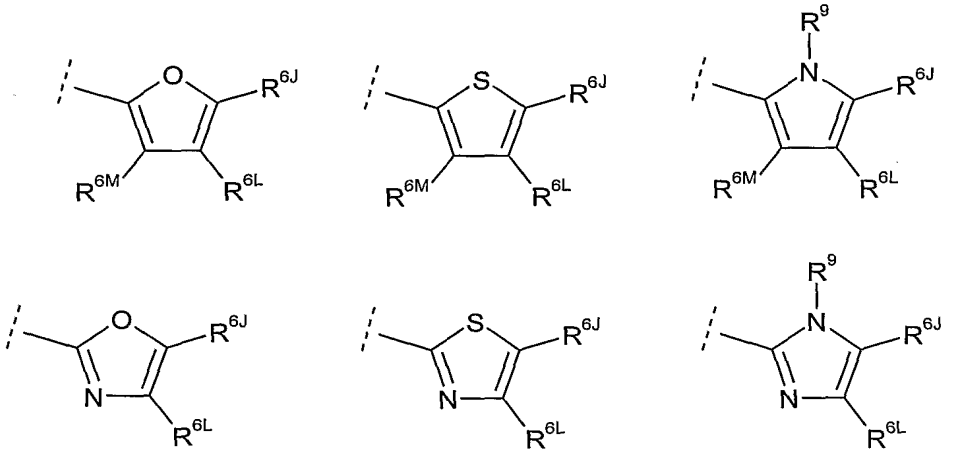
in sub-formula (x), R^{6A}, R^{6B}, R^{6D}, R^{6E} and R^{6F}, independently of each other, are: a hydrogen atom (H), a fluorine, chlorine or bromine atom, methyl, ethyl, n-propyl, isopropyl, trifluoromethyl, $-CH_2OH$, methoxy, ethoxy, n-propoxy, difluoromethoxy, OH or $MeS(O)_2-$.

34. A compound or salt as claimed in any preceding claim, wherein

R^9 is a hydrogen atom (H) or methyl;

R^{6J}, R^{6L}, R^{6M} and R^{6Q} independently are H, OH (including any keto tautomer thereof), C_{1-2}alkyl or C_1fluoroalkyl; and

when Ar has the sub-formula (z), then sub-formula (z) is one of the following:



35. A compound or salt as claimed in claim 1, which is one of Examples 1 to 29, as a compound or a pharmaceutically acceptable salt thereof.

36. A compound or salt as claimed in any preceding claim, for use as an active therapeutic substance in a mammal.

37. A pharmaceutical composition comprising a compound of formula (I) or a pharmaceutically acceptable salt thereof, as defined in any of claims 1 to 35, and one or more pharmaceutically acceptable carriers and/or excipients.

38. The use of a compound of formula (I) or a pharmaceutically acceptable salt thereof, as defined in any of claims 1 to 35, in the manufacture of a medicament for the treatment and/or prophylaxis of an inflammatory and/or allergic disease in a mammal.

39. The use as claimed in claim 38, wherein the inflammatory and/or allergic disease is chronic obstructive pulmonary disease (COPD), asthma, rheumatoid arthritis or allergic rhinitis in a human.

40. A method of treatment and/or prophylaxis of an inflammatory and/or allergic disease in a human in need thereof, which method comprises administering to the human a therapeutically effective amount of a compound of formula (I) or a pharmaceutically acceptable salt thereof as defined in any of claims 1 to 35.